

REMARKS

Favorable reconsideration of the present patent application is respectfully requested in view of the foregoing amendments and the following remarks.

In this Amendment claims 33-36 are added, claims 1-2 are amended, and claims 14 and 29-32 are canceled (claims 4-13 and 15-16 were previously canceled). As a result, claims 1-3 and 17-28 and 33-36 are now pending in the application. Claims 1-2 are amended to attend to a minor typographical error (an errant "." between the words "a" and "token"). Support for the newly added claims can be found throughout the specification, for example, at pages 3-4, 6 and 9-10, as well as FIGS 1 and 3.

In the non-final Office Action of April 2, 2009, claims 1-3, 18-20, 22-25 and 27-28 are rejected under 35 U.S.C. §103(a) in view of published U.S. Patent Application 2004/0267932 (Voellm) and further in view of published U.S. Patent Application 2004/0042399 (Bly). Claims 17, 21 and 26 are rejected under 35 U.S.C. §103(a) in view of Voellm further in view of Bly and yet even further in view of published U.S. Patent Application 2004/0062259 (Jeffries).

Restriction Requirement

Group I of claims 1-3 and 17-28 was elected. This Amendment cancels non-elected claims 14 and 29-32.

§103 Rejections in view of Voellm / Bly / Jeffries

The §103 rejection of claims 1-3, 18-20, 22-25 and 27-28 in view of the Voellm / Bly hypothetical combination and the §103 rejection of claims 17, 21 and 26 in view of Voellm / Bly / Jeffries are each traversed for at least the following reasons.

Various embodiments disclosed in this patent application involve systems for managing bandwidth, upon request, between one or more source entities (e.g., software application programs) operating on one or more resources (e.g., processor units). The software application program source entities are each characterized by a priority status class for use in allocating bandwidth to the software source entities. A local bandwidth management table is used to track the local token count of each source entity software class. Bandwidth is allocated for a program source entity if there is an available token for the entity's assigned class. It should be noted that there is a local bandwidth management table with a token count for each class of software program source entity. For example, claim 1 recites "maintain[ing] a local bandwidth management table comprising a local token count for each of a plurality of classes of source entities." This differs considerably from the hypothetical combination proposed in the pending Office Action. Allocating bandwidth based on classes for the software application source entities helps address the problem that arises wherein a slowdown situation is tolerable for some classes of programs (e.g., word processors), but is completely unacceptable for other classes of programs (e.g., games, videos). Inadequate bandwidth for games or videos may result in a distorted display, stilted motion or some other similar, and less than desirable, end result. The cited art operates in a different manner and is ineffective in addressing these sort of problems.

The first cited Voellm document involves a system for dynamically allocating resources based on transactions between client-server computers. Voellm allocates server buffers 209 to clients (e.g., 205) seeking an I/O transaction from the server 201.¹ This is done using “credits” to keep track the transaction requests by the client to its server computer, not based on transactions within a class of software program source entities. This is explained at paragraph [0028] of

Voellm:

[0028] Initially, when the client 203 connects to the server 201, the two systems negotiate an initial allocation of transaction request credits. Once the negotiation of credits is complete, the client 203 is allowed to send a number of transaction requests up to the negotiated limit. A typical minimum number of credits could be two. One credit could be reserved by the client 203 to handle priority messages. In the case of LWIO one credit may be reserved for INTERRUPT messages which tell the server 201 that the client 203 is going to sleep to wait for outstanding requests to be processed. The server sends a wake-up message so the client can complete its transactions.

Thus, Voellm does not teach or suggest “maintain a local bandwidth management table comprising a local token count for each of a plurality of classes of source entities,” as recited in claim 1, or the similar features of claims 3 and 24, wherein the source entities are application programs. Since Voellm does not manage bandwidth by responding to requests from a source entity (software), the Voellm document does not teach or suggest a “the plurality of load shapers is further configured to request a token for the class of the source entity from the Bandwidth Management Controller in response to the transmission,” as recited in claim 1, or the similar features of claims 3 and 24. Finally, since the Voellm device uses credits to keep track transaction requests by *a client computer* rather than software application source entities, Voellm does not teach or suggest “decrement the local token count for the class of the source entity in the

¹ See paragraph [0022].

local bandwidth management table in response to the transmission,” as recited in claim 1, or the similar features of claims 3 and 24 (where the transmission takes place if the local token count for the class of the source entity is at least one). The secondarily cited documents, Bly and Jeffries, do not overcome these deficiencies of Voellm.

The Bly document involves a data traffic shaping system that groups bandwidth allocations by awarding burst group credits. Bly explains this in paragraph [0019], specifying to “assign each queue 44-47 (FIG. 4) to be a member of one or more of the burst groups” and then the “burst groups 12, 14, 16 are given a selectable allocation of credits at a steady rate.” Since Bly awards credits to burst groups at a steady rate, Bly does not teach or suggest “the plurality of load shapers is further configured to request a token for the class of the source entity from the Bandwidth Management Controller in response to the transmission” or the feature of “decrement[ing] the local token count for the class of the source entity in the local bandwidth management table in response to the transmission,” as recited in claim 1, or the similar features of claims 3 and 24 (emphasis added).

The Jeffries document does not teach or suggest the aforementioned claim features for reasons similar to those mentioned above. Jeffries, at paragraph [0034], describes the process of incrementing its token counter as follows:

In addition, the token count T_C is continuously incremented by controller 6 up to a maximum upper limit CBS corresponding to the committed burst size. Specifically, the token count T_C is incremented at a token increment rate C which is itself varied in dependence on bandwidth availability in buffer 8. The availability of bandwidth is indicated by a bandwidth indicator which is generated by controller 6 by comparing the queue occupancy (represented here by the queue length L_Q) with a threshold value “ T ”.

Thus, the Jeffries document does not overcome the deficiencies of Voellm and Bly discussed above.

Accordingly, it is respectfully submitted that Voellm, Bly and Jeffries, either taken singly or in hypothetical combination, do not teach or suggest the claimed features. Therefore, withdrawal of the pending §103 rejections is earnestly requested.

New Claims

Support for the newly added claims can be found throughout the specification, for example, at pages 3-4, 6 and 9-10, as well as FIGS 1 and 3.

Newly added claim 33 recites a “multi-processor system comprising a plurality of processor units, wherein each of said plurality of processor units is associated with a respective one of said plurality of load shapers,” and claim 34 recites similar features. The cited art is configured in a different manner and does not teach or suggest these features.

Newly added claims 35 and 36 recite similar features to pending claims 2 and 17. It is respectfully submitted that these features are not taught or suggested by the art of record since, as outlined above in the Remarks section, the relied upon documents do not teach or suggest classes of application program source entities. In the event the rejection is maintained it is respectfully requested that the next paper from the Office further explain its position that the cited art teaches to linearly increase and exponentially decrease standby tokens in the manner claimed.

Deposit Account Authorization / Provisional Time Extension Petition

It is believed that no extension of time or fees are required for this filing. However, to the extent necessary, a provisional petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 09-0447 (IBM) and please credit any excess fees to this deposit account.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. However, in the event there are any unresolved issues, the Examiner is kindly invited to contact applicant's representative, Scott Richardson, by telephone at (571)748-6200 so that such issues may be resolved as expeditiously as possible.

Respectfully submitted,
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